

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

re Patent Application of:

**RUDOLPH W. FREY ET AL.**

Serial No. **09/745,192**

Filing Date: **December 21, 2000**

For: **METHOD FOR DETERMINING AND  
CORRECTING VISION**

Asst. Commissioner for Patents  
Washington, D.C. 20231

Sir:

Art Unit: **2877**

2877  
BET  
9-27-01  
#4 IDS  
(suppl.)

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**TRANSMITTAL OF SUPPLEMENTAL  
INFORMATION DISCLOSURE STATEMENT**

In compliance with 37 C.F.R. §1.97(b), it is respectfully requested that the Information Disclosure Statement (Form PTO/SB/08A) attached hereto be entered and the references listed thereon be considered by the Examiner and made of record. Copies of the listed references are enclosed.

Respectfully submitted,



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Jacqueline E. Hartt, Ph.D.

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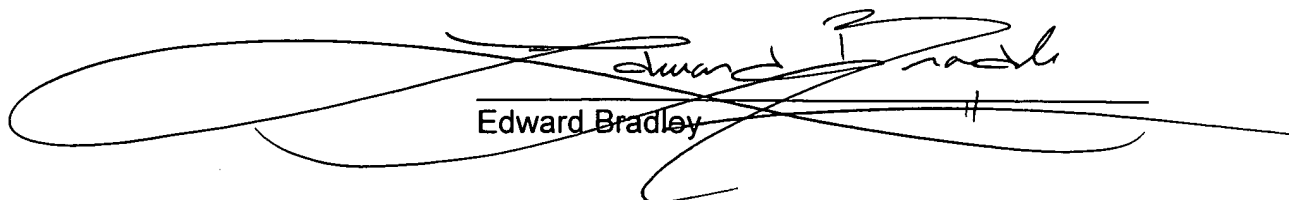
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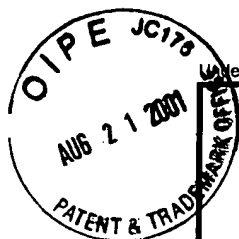
Agent for Applicant

**CERTIFICATE OF MAILING**

I hereby certify that the foregoing is being deposited with the United States Postal Service as first class mail in an envelope addressed to the Assistant Commissioner of Patents, Washington D.C. 20231, this 14<sup>TH</sup> day of August, 2001.



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Edward Bradley



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Substitute for form 1449A/PTO <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				<b>Complete If Known</b>	
				Application Number	09/745,192
Sheet 1 of 9				Filing Date	12/21/2000
				First Named Inventor	Rudolph W. Frey
				Group Art Unit	2877
				Examiner Name	
				Attorney Docket Number	24430.6

Examiner Initials*	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code (if known)			
	AA	3,880,501		Munnerlyn	Apr. 29, 1975	
	AB	4,069,823		Isakov et al	Jan. 24, 1978	
	AC	4,523,821		Lang et al.	June 18, 1985	
	AD	4,579,430		Bille	Apr. 1, 1986	
	AE	4,632,528		Yoshino et al.	Dec. 30, 1986	
	AF	4,669,466		L'Esperance	June 2, 1987	
	AG	4,688,941		Philbert	Aug. 25, 1987	
	AH	4,702,245		Schröder et al	Oct. 27, 1987	
	AI	4,718,418		L'Esperance, Jr.	Jan. 12, 1988	
	AJ	4,721,379		L'Esperance	Jan. 26, 1988	
	AK	4,729,372		L'Esperance, Jr.	Mar. 8, 1988	
	AL	4,750,818		Cochran	Jun. 14, 1988	
	AM	4,764,930		Bille et al	Aug. 16, 1988	
	AN	4,838,679		Bille	June 13, 1989	
	AO	4,848,340		Bille et al	Jul. 18, 1989	
	AP	4,881,808		Bille et al	Nov. 21, 1989	
	AQ	4,901,718		Bille et al	Feb. 20, 1990	
	AR	4,907,586		Bille et al	Mar. 13, 1990	
	AS	4,941,093		Marshall et al	Jul. 10, 1990	
	AT	4,972,836		Schenck et al	Nov. 27, 1990	
	AU	4,988,348		Bille	Jan. 29, 1991	
	AV	4,991,953		Pflibsen et al.	Feb. 12, 1991	
	AW	5,026,977		Hubbard, Jr.	Jun. 25, 1991	
	AX	5,062,702		Bille	Nov. 5, 1991	
	AY	5,106,183		Yoder, Jr.	Apr. 21, 1992	
	AZ	5,114,628		Höfer et al.	May 19, 1992	

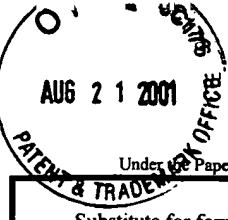
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PTO/SB/08A (10-96)

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				Group Art Unit	2877
				Examiner Name	
Sheet	2	of	9	Attorney Docket Number	24430.6

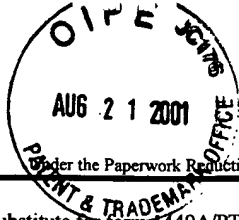
Examiner Initials*	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code (if known)			
	BA	5,139,022		Lempert	Aug. 18, 1992	
	BB	5,147,352		Azema et al	Sep. 15, 1992	
	BC	5,159,361		Cambier et al.	Oct. 27, 1992	
	BD	5,177,511		Feuerstein et al.	Jan. 5, 1993	
	BE	5,184,157		Ichihashi et al.	Feb. 2, 1993	
	BF	5,196,006		Klopotek et al	Mar. 23, 1993	
	BG	5,198,845		Triller	Mar. 30, 1993	
	BH	5,202,709		Ischihashi et al.	Apr. 13, 1993	
	BI	5,214,456		Gersten	May 25, 1993	
	BJ	5,221,834		Lisson et al	Jun. 22, 1993	
	BK	5,229,889		Kittell	July 20, 1993	
	BL	5,233,174		Zmek	Aug. 3, 1993	
	BM	5,243,367		Spellitz	Sept. 7, 1993	
	BN	5,246,435		Bille et al	Sep. 21, 1993	
	BO	5,258,791		Penney et al	Nov. 2, 1993	
	BP	5,263,950		L'Esperance, Jr.	Nov. 23, 1993	
	BQ	5,279,611		McDonnell et al	Jan. 18, 1994	
	BR	5,293,871		Reinstein et al.	Mar. 15, 1994	
	BS	5,298,971		Huang et al	Mar. 29, 1994	
	BT	5,307,097		Baker	Apr. 26, 1994	
	BU	5,324,281		Muller	Jun. 28, 1994	
	BV	5,334,190		Seiler	Aug. 2, 1994	
	BW	5,339,121		Shimmick et al	Aug. 16, 1994	
	BX	5,360,424		Klopotek	Nov. 1, 1994	
	BY	5,395,356		King et al	Mar. 7, 1995	
	BZ	5,404,884		Lempert	Apr. 11, 1995	

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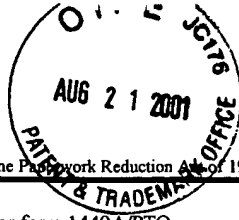
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		Number	Kind Code (if known)			
	CA	5,410,376		Cornsweet et al	Apr. 25, 1995	
	CB	5,411,501		Klopotek	May 2, 1995	
	CC	5,423,801		Marshall et al	Jun. 13, 1995	
	CD	5,437,658		Muller et al	Aug. 1, 1995	
	CE	5,439,462		Bille et al	Aug. 8, 1995	
	CF	5,442,412		Frey et al.	Aug. 15, 1995	
	CG	5,452,031		Ducharme	Sept. 19, 1995	
	CH	5,461,212		Seiler et al	Oct. 24, 1995	
	CI	5,473,392		Klopotek	Dec. 5, 1995	
	CJ	5,474,548		Knopp et al	Dec. 12, 1995	
	CK	5,475,452		Kuhn et al.	Dec. 12, 1995	
	CL	5,491,524		Hellmuth et al.	Feb. 13, 1996	
	CM	5,493,391		Neal et al.	Feb. 20, 1996	
	CN	5,502,518		Lieberman	Mar. 26, 1996	
	CO	5,505,723		Muller	Apr. 9, 1996	
	CP	5,507,741		L'Esperance, Jr.	Apr. 16, 1996	
	CQ	5,512,965		Snook	Apr. 30, 1996	
	CR	5,512,966		Snook	April 30, 1996	
	CS	5,521,657		Klopotek	May 28, 1996	
	CT	5,548,354		Kasahara et al.	Aug. 20, 1996	
	CU	5,556,395		Shimmick et al	Sep. 17, 1996	
	CV	5,563,709		Poultney	Oct. 8, 1996	
	CW	5,570,142		Lieberman	Oct. 29, 1996	
	CX	5,581,347		Le Saux et al.	Dec. 3, 1996	
	CY	5,592,246		Kuhn et al.	Jan. 7, 1997	
	CZ	5,629,765		Schmutz	May 13, 1997	

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				Examiner Name	
Sheet	4	of	9	Attorney Docket Number	24430.6

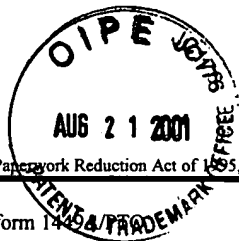
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		Number	Kind Code (if known)			
	DA	5,632,282		Hay et al	May 27, 1997	
	DB	5,632,742		Frey et al.	May 27, 1997	
	DC	5,673,096		Dorsel et al.	Sep. 30, 1997	
	DD	5,684,545		Dou et al	Nov. 4, 1997	
	DE	5,711,762		Trokel	Jan. 27, 1998	
	DF	5,722,427		Wakil et al.	Mar. 3, 1998	
	DG	5,735,283		Snook	Apr. 7, 1998	
	DH	5,735,843		Trokel	Apr. 7, 1998	
	DI	5,740,803		Gray et al.	Apr. 21, 1998	
	DJ	5,757,463		Kohayakawa	May 26, 1998	
	DK	5,777,719		Williams et al.	July 7, 1998	
	DL	5,784,146		Nanjo et al.	July 21, 1998	
	DM	5,785,704		Bille et al.	July 28, 1998	
	DN	5,822,035		Bille	Oct. 13, 1998	
	DO	5,825,476		Abitol et al.	Oct. 20, 1998	
	DO	5,841,511		D'Souza et al.	Nov. 24, 1998	
	DQ	5,847,804		Sarver et al.	Dec. 8, 1998	
	DR	5,861,955		Gordon	Jan. 19, 1999	
	DS	5,864,381		Neal et al.	Jan. 26, 1999	
	DT	5,920,373		Bille	July 6, 1999	
	DU	5,936,720		Neal et al.	Aug. 10, 1999	
	DV	5,943,117		Van De Velde	12/99	
	DW	5,949,521		Williams et al.	Sept. 7, 1999	
	DX	5,963,300		Horwitz	Oct. 5, 1999	
	DY	5,966,197		Yee	Oct. 12, 1999	
	DZ	5,994,687		Chanteloup et al.	Nov. 30, 1999	

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				Application Number	09/745,192
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Examiner Initials*	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code (if known)			
	EA	6,007,204		Fahrenkrug et al.	Dec. 28, 1999	
	EB	6,043,885		Mazuet et al.	Mar. 28, 2000	
	EC	6,050,687		Bille et al.	Apr. 18, 2000	
	ED	6,057,913		Brown et al.	May 02, 2000	
	EE	6,086,204		Magnante	Jul. 11, 2000	
	EF	6,095,651		Williams et al.	Aug. 1, 2000	
	EG	6,155,684		Bille et al.	Dec. 05, 2000	

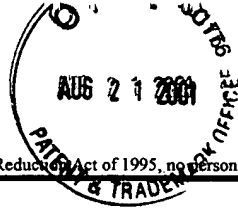
FOREIGN PATENT DOCUMENTS								
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		Office	Number	Kind Code (If known)				
	EH	PCT	WO 87/05205		G. Rodenstock Instrumente Gmbh	Sept. 11, 1987		
	EI	PCT	WO 87/06478		Institut National De La Sante Et De La Recherche Medicale	Nov. 5, 1987		
	EJ	PCT	WO 92/01417		Horwitz, Larry S.	Feb. 6, 1992		
	EK	JP	5-146409		Topcon Corp.	June 15, 1993		T
	EL	JP	6-327634		Topcon Corp.	Nov. 29, 1994		T
	EM	WO	95/28989		Autonomous Technologies Corp.	Nov. 2, 1995		
	EN	EP	0 697 611	A3	Carl Zeiss	Feb. 21, 1996		T
	EO	EP	0 697 611	A2	Carl Zeiss	Feb. 21, 1996		T
	EP	DE	42 22 395	A1	Meyer-Roedern	Jan. 13, 1994		
	EQ	PCT	WO 98/27863		University of Rochester	July 2, 1998		T

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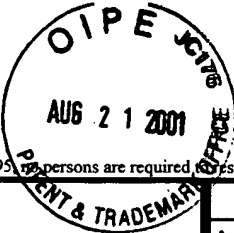
OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or county where published.	T <sup>2</sup>
	ER	PULIANTO, et al., "High-Speed Photography of Excimer Laser Ablation of the Cornea," <i>Arch Ophthalmol</i> , Vol. 105, Sept. 1987, pages 1255-1259.	
	ES	LIANG, et al., "Objective Measurement of Wave Aberrations of the Human Eye with the Use of a Hartmann-Shack Wave-front Sensor," <i>J. Opt. Soc. Am. A</i> , Vol. 11, No. 7, July 1994, pages 1949-1957.	
	ET	WU, "Supernormal Vision, a Focus on Adaptive Optics Improves Images of the Eye and Boosts Vision," <i>Science News</i> , Vol. 152, November 15, 1997, pages 312-313.	
	EU	DREHER, et al., "Active Optical Depth Resolution Improvement of the Laser Tomographic Scanner," <i>Applied Optics</i> , Vol. 28, No. 4, February 1989, pages 804-808.	
	EV	GEARY, "Appendix 1.1 - Basic Geometrical Optics, Chapter 6 - Indirect Wavefront Measurement, Part II," and "Chapter 7 - Wavefront Sensor Characterization & Calibration," <i>Introduction to Wavefront Sensors</i> , May 1995, pages 10-11, 89-103, and 105-109.	
	EW	"Scientists Snap Sharpest Pictures of Living Human Retina," <a href="http://www.rochester.edu/pr/releases/opt/will.htm">http://www.rochester.edu/pr/releases/opt/will.htm</a> , October 3, 1994.	
	EX	THE APPLIED OPTICS GROUP, "Shack Hartmann Sensors," <a href="http://op.ph.ic.ac.uk/ao/sh_sense.html">http://op.ph.ic.ac.uk/ao/sh_sense.html</a> , June 4, 1996, pages 1-3.	
	EY	THE APPLIED OPTICS GROUP, "Results from UKIRT," <a href="http://op.ph.ic.ac.uk/ao/ukirt_res.html">http://op.ph.ic.ac.uk/ao/ukirt_res.html</a> , February 22, 1995, pages 1-2.	
	EZ	THE APPLIED OPTICS GROUP, "Astronomical Imaging Through Turbulence: An Overview," <a href="http://op.ph.ic.ac.uk/ao/overview.html">http://op.ph.ic.ac.uk/ao/overview.html</a> , June 4, 1996, pages 1-4.	
	FA	.eESA, WFS, "Wave Front Sensor," <a href="http://esapub.esrin.esa.it/pointtotest/test251.html">http://esapub.esrin.esa.it/pointtotest/test251.html</a> , May 23, 1997, pages 1-2.	
	FB	WILLIAMS, "Limits of Human Vision," <a href="http://www.cvs.rochester.edu/people/d_williams/d_williams.html">http://www.cvs.rochester.edu/people/d_williams/d_williams.html</a> , December 30, 1998, pages 1-4.	
	FC	"Extensions of Low-Cost Adaptive Optics: Imaging of Space-Objects, the Retina, and Power Projection," Industrial Sensors and Actuators, dated Dec. 1993 (actual publication date, if any, unknown), pp. 1, 10, and 15.	

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				Application Number	09/745,192
				Filing Date	12/21/2000
				First Named Inventor	Rudolph W. Frey
				Group Art Unit	2877
				Examiner Name	
Sheet	7	of	9	Attorney Docket Number	24430.6

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	FD	LABJUHN, et al., "Astigmatismkorrektur durch Laserthermokeratoplastik (LTK) - Ein Ansatz für die Korrektur des hohen Astigmatismus nach Perforierender Keratoplastik, <i>Contactologia 18D</i> (1996), pp. 175-183.		
	FE	COHEN, et al., "Assessment of the Power and Height of Radial Aspheres Reported by a Computer-assisted Keratoscope," <i>American Journal of Ophthalmology</i> , Vol. 119, Vol. No. 6, Nov. 30, 1994, pp. 723-732.		
	FF	CORBETT, et al., "The Topography of the Normal Cornea," <i>Eur J Implant Ref Surg.</i> , Vol. 6, Oct., 1994, pp. 286-297.		
	FG	MAEDER, et al., "Accurate 3D Corneal Surface Measurement Using an Automated Mapping Approach," <i>SPIE</i> , Vol. 2434, 1995, pp. 328-334.		
	FH	SALMON, et al., "Comparison of Elevation, Curvature, and Power Descriptors for Corneal Topographic Mapping," <i>Optometry &amp; Vision Science</i> , Vol. 72, No. 11, 1195, pp. 800-808.		
	FI	PAVLOPOULOS, et al, "The Effect of Artificial Tears on Computer-assisted Corneal Topography in Normal Eyes and After Penetrating Keratoplasty," <i>American Journal of Ophthalmology</i> , Vol. 119, June 1995, pp. 712-722.		
	FJ	ROBERTS, "Characterization of the Inherent Error in a Spherically-Biased Corneal Topography System in Mapping a Radially Aspheric Surface," <i>Journal of Refractive &amp; Corneal Surgery</i> , Vol. 10, March/April 1994, pp. 103-111.		
	FK	THORNTON, "Clinical Evaluation of Corneal Topography," <i>J. Cataract Refract. Surg.</i> , Vol. 19, Supplement 1993, pp. 198-202.		
	FL	RABINOWITZ, et al., "Computer-assisted Corneal Topography in Keratoconus," <i>Refractive &amp; Corneal Surgery</i> , Vol. 5, Nov./Dec. 1989, pp. 400-408.		
	FM	WILSON, et al., "Accuracy and Precision of the Corneal Analysis System and the Topographic Modeling System," <i>Cornea</i> , Vol. 11, No. 1, 1992, pp. 28-35.		
	FN	BOGAN, et al., "Computer-assisted Videokeratography of Corneal Topography After Radial Keratotomy," <i>Arch. Ophthalmol.</i> , Vol. 109, June 1991, pp. 834-841.		
	FO	BOGAN, et al., "Classification of Normal Corneal Topography Based on Computer-assisted Videokeratography," <i>Arch. Ophthalmol.</i> , Vol. 108, July 1990, pp. 945-949.		

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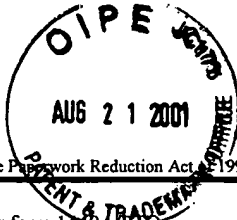
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	FP	REIDY, et al., "The Corneal Topography of Epikeratophakia," <i>Refractive &amp; Corneal Surgery</i> , Vol. 6, Jan./Feb. 1990, pp. 26-31.	
	FQ	DINGELDEIN, et al., "The Topography of Normal Corneas," <i>Arch. Ophthalmol</i> , Vol. 107, April 1989, pp. 512-518.	
	FR	MCDONNELL, et al., "Topographic Analysis and Visual Acuity After Radial Keratotomy," <i>American Journal of Ophthalmology</i> , Vol. 106, No. 6, December 1988, pp. 692-695.	
	FS	MCDONNELL, et al., "Corneal Topographic Changes After Radial Keratotomy," <i>Ophthalmology</i> , Vol. 96, No. 1, January 1989, pp. 45-49.	
	FT	KIELY, et al., "The Mean Shape of the Human Cornea," <i>Optica Acta</i> , Vol. 29, No. 8, 1982, pp. 1027-1040.	
	FU	BAFNA, et al., "Corneal Power Calculated by the Paraxial Formula and Snell's Law in Normal Corneas," <i>Investigative Ophthalmology &amp; Visual Science</i> , Vol. 37, No. 3, February 1996, Poster No. 2589.	
	FV	MATALLANA, et al., "3-D Video Corneal Topography True Elevation Mapping," <i>Investigative Ophthalmology &amp; Visual Science</i> , Vol. 37, No. 3, February 1996, Poster No. 2590.	
	FW	AOYAMA, et al., "Quantitative Evaluation of Corneal Astigmatism Using Computer Corneal Topography and Newly Developed Software," <i>Investigative Ophthalmology &amp; Visual Science</i> , Vol. 37, No. 3, February 1996, Poster No. 2591.	
	FX	CELIKKOL, et al., "Neural Network Analysis of Videokeratography Following Excimer Laser Photorefractive Keratectomy," <i>Investigative Ophthalmology &amp; Visual Science</i> , Vol. 37, No. 3, February 1996, Poster No. 2592.	
	FY	WALSH, et al., "Objective Technique for the Determination of Monochromatic Aberrations of the Human Eye," <i>J. Opt. Soc. Am. A</i> , Vol. 1, No. 9, Sept. 1984, pp. 987-992.	
	FZ	WILLIAMS, et al., "Adaptive Optics for High Resolution Retinal Imaging," <i>Investigative Ophthalmology &amp; Visual Science</i> , Vol. 37, No. 3, February 1996, p. 1055.	

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	GA	CHARMAN, "Wavefront Aberration of the Eye: A Review," <i>Optometry and Vision Science</i> , Vol. 68, No. 8, pp. 574-583.	
	GB	BARTSCH, et al., "Resolution Improvement in Confocal Scanning Laser Tomography of the Human Fundus," <i>1994 Technical Digest Series</i> , Vol. 2 (Optical Society of America, Washington D. C.), 1994, pp. 134-137.	
	GC	DREHER, et al., "Active Optical Depth Resolution Improvement of the Laser Tomographic Scanner," <i>Applied Optics</i> , Vol. 28, No. 4, Feb. 1989, pp. 804-808.	
	GD	BILLE, et al., "Scanning Laser Tomography of the Living Human Eye," <i>Noninvasive Diagnostic Techniques in Ophthalmology</i> , Chapter 28, edited by Masters, B.R., Springer-Verlag, 1990, pp. 528-547.	
	GE	LIANG, JUNZHONG, <i>A New Method to Precisely Measure the Wave Aberrations of the Human Eye with a Hartmann-Shack Wavefront Sensor</i> , Inaugural Dissertation, December 1991, pages 1-115, Heidelberg, Germany.	
	GF	BILLE, et al., "Imaging of the Retina by Scanning Laser Tomography," <i>New Methods in Microscopy and Low Light Imaging</i> , Vol. 1161, 1989, pages 417-425.	
	GG	CUBALCHINI, "Modal Wave-front Estimation from Phase Derivative Measurements," <i>J. Opt. Soc. Am.</i> , Vol. 69, 1979, pages 972-977.	
	GH	"Modal Wave-front Estimation from Phase Derivative Measurements," Referenced in Bille, U.S. Patent No. 5,062,702 IDS, 1990.	
	GI	FREISCHLAD, et al., "Modal Estimation of a Wave Front from Difference Measurements Using the Discrete Fourier Transform," <i>J. Opt. Soc. Am.</i> , Vol. 3, No. 11, November 1986, pages 1852-1861.	
	GJ	KLYCE, et al., "Imaging, Reconstruction, and Display of Corneal Topography," <i>New Methods in Microscopy and Low Light Imaging</i> , Vol. 1161, 1989, pages 409-416.	
	GK	BAKER, "Optical Surface Testing of the Cornea," <i>New Methods in Microscopy and Low Light Imaging</i> , Vol. 1161, 1989, pages 427-437.	
	GL	SOUTHWELL, "Wave-front Estimation from Wave-front Slope Measurements," <i>J. Opt. Soc. Am.</i> , Vol. 70, No. 8, August 1980, pages 998-1005.	

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